

REMARKS

Favorable reconsideration of this application as presently amended and in light of the following discussion is respectfully requested.

Claims 1 and 3-9 are pending in the present application. Claims 1 and 3 are amended by the present response.

In the outstanding Office Action, the specification was objected to; the drawings were objected to; Claims 1 and 3 were rejected under 35 U.S.C. §112, first paragraph; Claims 1 and 3-9 were rejected under 35 U.S.C. § 112, second paragraph; and Claims 1 and 3-9 were rejected under 35 U.S.C. § 103(a) as unpatentable over Skowronski et al. (U.S. Patent No. 6,170,251, herein "Skowronski") in view of Schneider (U.S. Patent No. 6,584,775).

Regarding the objection to the specification, it is noted that the subject matter of Claim 8 is supported by the paragraph bridging pages 10 and 11 of the originally filed specification. More specifically, this paragraph indicates that

The control system for the adjustable vanes (IGV) described above is associated with a system for bleeding hot air from the compressor exhaust (known as an IBH, an acronym for "inlet bleed heating system"), . . . which is introduced into an inlet of the compressor.

In addition, it is noted that the originally-filed Claim 4 recites in the last three lines that (W2) is a flow rate for a bleed system (IBH) "where (W2) is the flow rate of air drawn in by the compressor."

As the subject matter of Claim 8 finds support in the specification, Applicants respectfully request this objection be withdrawn.

Regarding the objection to the drawings, Figure 1 has been amended to show an inlet bleed heating system 16. As the use of an inlet bleed heating system is known in the art and as 37 C.F.R. § 1.83 states that “conventional features disclosed in the description and claims, where their detailed illustration is not essential for a proper understanding of the invention, should be illustrated . . . in the form of a graphical drawing symbol,” Figure 1 has been amended to illustrate the system 16 by a symbol.

Accordingly, it is respectfully requested this objection be withdrawn.

Regarding the rejection of Claims 1 and 3 under 35 U.S.C. § 112, first paragraph, it is noted that the originally-filed specification discloses on page 16, lines 4-12 that a “unit 60 operates . . . the adjustment of the extraction flow rate of the bleed system (IBH), based on the measurement angle of rotation of the distributor vanes (IGV) 14 and the ambient temperature 63.” Based on this disclosure, independent Claim 1 has been further amended to recite that the calculation unit adjusts the flow rate as disclosed in the specification. The same arguments apply for Claim 3 which was amended similar to independent Claim 1. No new matter has been added. Accordingly, it is respectfully requested this objection be withdrawn.

Regarding the rejection of Claims 1 and 3-9 under 35 U.S.C. § 112, second paragraph, it is believed that the previously noted amendments to Claims 1 and 3 overcome this rejection. In addition, it is noted that in numbered paragraph 13 of the outstanding Office Action, the Examiner requested that Claims 3 and 4 be amended to change the word “Claim” to be in lower case. However, Applicants respectfully submit

that there is no such requirement in the code or rules or the MPEP and all the claims use the same terminology as dependent Claims 3 and 4.

Accordingly, it is respectfully requested this rejection be withdrawn.

Independent Claim 1 has been amended to more clearly recite that at least one calculation unit adjusts a flow rate of a bleed system based on ambient temperature and a rotation of adjustable vanes and also to indicate that the bleed system and the adjustable vanes are pertinent to the compressor and not to the turbine. No new matter has been added.

The rejection of Claims 1 and 3-9 under 35 U.S.C. § 103(a) as unpatentable over Skowronski in view of Schneider is respectfully traversed for the following reasons.

Briefly recapitulating, independent Claim 1 is directed to a system for controlling and optimizing emissions of a catalytic combustor in a gas turbine including a compressor and a turbine. The system includes at least one calculation unit configured to implement a mathematical model of an operation of the gas turbine. The mathematical model links a flow rate of a bleed system of the compressor to an ambient temperature and a rotation of adjustable vanes that control the flow of fluid into the compressor. The flow rate of the bleed system of the compressor is adjusted based on the ambient temperature and the rotation of the adjustable vanes of the compressor.

Turning to the applied art, Skowronski discloses a microturbine power generating system including a turbo compressor and an auxiliary compressor. More specifically, the device of Skowronski illustrated in Figure 2 includes a primary compressor (12), an

electrical generator (16) and a turbine (14) that can rotate as a unit. Further, Figure 2 shows an auxiliary compressor (104) that is driven by the turbine. During the operation of the system, a small portion of air can be bled off the primary compressor (12) and then further compressed by the auxiliary compressor (104) for optimizing air flow requirements at part-load operation¹. A control (106) is used for controlling the IGV (102). Skowronski discloses at column 5, lines 49-51, that the guide vanes (102) are controlled by control (106) for either using “output air requirements to control the flow of air into the auxiliary compressor 104” or using “the air requirements of the turbine 14 to control the flow of air into the auxiliary compressor 104.”

Based on this disclosure, the outstanding Office Action assumes in the paragraph bridging pages 5 and 6 that Skowronski discloses the mathematical model that links a flow rate of the bleed system of the compressor to an ambient temperature and a rotation of adjustable vanes that control the fluid entering the compressor.

However, it is noted that Skowronski does not teach or suggest a bleed system of the compressor and therefore, Skowronski can not teach a mathematical model that links a flow rate of a bleed system of the compressor to an ambient temperature and a rotation of adjustable vanes.

In order to cure this deficiency, the outstanding Office Action relies on Schneider for teaching that an air flow rate to a gas turbine is related to a reference air mass flow

¹ Skowronski, column 5, lines 43-55.

rate at a reference ambient air temperature, ambient air pressure, ambient air humidity, inlet guide vane position, and compressor inlet temperature.

However, Applicants note that Schneider discloses an air flow rate through a gas turbine and not a flow rate of a bleed system of a compressor as recited by independent Claim 1.

Applicants respectfully submit that the bleed system of a compressor removes part of the compressed medium from an outlet of the compressor and returns the compressed medium to the inlet of the compressor, which is different from determining a flow of air through a gas turbine.

Furthermore, even if Schneider teaches determining an air flow rate through the gas turbine as related to a reference air mass flow rate, that is not equivalent to adjusting the flow rate of the bleed system of the compressor based on ambient temperature and the rotation of adjustable vanes of the compressor.

Accordingly, it is respectfully submitted that independent Claim 1 and each of the claims depending therefrom patently distinguish over Skowronski and Schneider, either alone or in combination.

Dependent Claims 3-9 are also believed to be allowable as they depend from independent Claim 1, which as discussed above, is believed to patently distinguish over Skowronski and Schneider. Accordingly, it is respectfully requested dependent Claims 3-9 also be allowed.

Accordingly, in light of the above discussion and in view of the enclosed amendments, the present application is believed to be in condition for allowance and an early and favorable action to that effect is respectfully requested. If, however, there are any remaining unresolved issues that would prevent the issuance of the Notice of Allowance, the Examiner is urged to contact the undersigned at (540) 361-2601 in order to expedite prosecution of this application.

Respectfully submitted,
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